In the claims:

Please amend the claims as follows:

1-18. (cancelled).

19. (withdrawn). A chimeric receptor containing two or more independent polypeptide chains, each of said chains comprising in N- to C-terminus sequence:

(1) an extracellular ligand association domain;

(2) a spacer domain;

(3) a transmembrane domain; and

(4) one or more intracellular domains; provided that at least two of said domains in one chain are not naturally fused to each other, and wherein the spacer and/or transmembrane domains are selected to remain unassociated except in the presence of bound ligand.

20. (withdrawn). A chimeric receptor according to Claim 19 wherein each extracellular ligand association domain is an antibody variable region (V_H or V_L) domain, a T-cell receptor variable region domain (TCRα, TCRβ, TCRγ, TCRδ), CD8α, CD8β, CD11a, CD11b, CD11c, CD18, CD29, CD49a, CD49b, CD49c, CD49d, CD49e, CD49f, CD61, CD41 or CD51 chain or a fragment thereof.

21. (withdrawn). A chimeric receptor according to Claim 20 wherein each association domain is structurally different to each other.

22. (withdrawn). A chimeric receptor according to Claim 19 wherein the ligand association domains of the chimeric receptor are a V_H domain paired with a V_L domain, two or more TCRα, TCRβ, TCFγ, and/or TCRδ domains, a CD8α or β homo- or heterodimer, CD18 paired with one or more of CD11a, b, or c, CD29 paired with one or more of CD49a, b, c, d, e, or f, and CD61 paired with CD41c and/or CD51.

23. (withdrawn). A chimeric receptor according to Claim 19 wherein each intracellular domain is a naturally occurring polypeptide signaling sequence.

24. (withdrawn). A chimeric receptor according to Claim 23 wherein each signaling sequence is all or part of the zeta, eta or epsilon chain derived from the T-cell receptor; CD28; CD4; CD8; the γ chain of an Fc receptor; a signaling component from a cytokine receptor, a colony stimulating factor receptor, a tyrosine kinase and binding domains thereof; or an adhesion molecule.

25. (withdrawn). A chimeric receptor according to Claim 19 wherein the transmembrane domain is an oligo- or polypeptide derived from all or part of the alpha, beta or zeta chain of the T-cell receptor, CD28, CD8, CD4, CD3ϵ, CD45 and members of the tetraspan family, a cytokine receptor, or a colony stimulating factor receptor.

26. (withdrawn). A chimeric receptor according to Claim 19 wherein each spacer domain is a polypeptide comprising 20 to 100 amino acids.

27. (withdrawn). A chimeric receptor according to Claim 19 wherein each independent polypeptide chain has a secretion signal sequence attached to the N-terminus of the association domain of each chain.

28. (withdrawn). A chimeric receptor according to Claim19 wherein the chimeric receptor has two independent polypeptide chains.

29. (withdrawn). A chimeric receptor according to Claim 28 wherein one polypeptide chain has a ligand association domain which is a V_H domain or a fragment thereof, and the other has a ligand association domain which is a V_L domain or a fragment thereof.

30. (withdrawn). A chimeric receptor of Claim 19, wherein the spacer domain is modified to remain unassociated except in the presence of bound ligand.

31. (withdrawn). A chimeric receptor of Claim 19, wherein the transmembrane domain is modified to remain unassociated except in the presence of bound ligand.

32. (withdrawn). A chimeric receptor of Claim 19, wherein the spacer domain is a CD8 domain.

33. (withdrawn). A chimeric receptor of Claim 32, wherein the CD8 spacer domain is a modified CD8 spacer domain.

34. (currently amended). A nucleic acid sequence encoding a chimeric receptor ~~of Claim 19 or an independent polypeptide chain thereof~~, wherein the chimeric receptor contains two independent polypeptide chains, a first polypeptide chain and a second polypeptide chain, wherein the first polypeptide chain comprises in N- to C-terminus sequence:

(1) an extracellular ligand association domain of an antibody heavy chain variable region;
(2) a spacer domain of any polypeptide comprising 20 to100 amino acid residues;
(3) a transmembrane domain of any oligonucleotide or polypeptide derived from all or part of a human CD4 transmembrane domain; and

an intracellular domain, wherein the intracellular domain is a signaling domain comprised of any naturally occurring polypeptide signaling sequence that is all or part of the human CD4 intracellular signaling domain;

and wherein the second polypeptide chain comprises in N- to C-terminus sequence:

(4) an extracellular ligand association domain of an antibody light chain variable region;
(5) a spacer domain of any polypeptide comprising 20 to100 amino acid residues;

(6) a transmembrane domain of any oligonucleotide or polypeptide derived from all or part of a human CD4 transmembrane domain; and

an intracellular domain, wherein the intracellular domain is a signaling domain comprised of any naturally occurring polypeptide signaling sequence that is all or part of the human T cell receptor zeta chain;

wherein the spacer and/or transmembrane domains of the first and second polypeptide chains are selected to remain unassociated except in the presence of bound ligand.

35 (previously presented). A nucleic acid sequence according to Claim 34 in association with a carrier.

36. (previously presented). A nucleic acid sequence according to Claim 35 wherein the carrier is a viral vector, a liposomal vector, a cationic lipid or an antibody.

37. (previously presented). A nucleic acid sequence according to Claim 35 wherein the carrier is a targeted carrier.

38. (previously presented). A nucleic acid sequence according to Claim 34 wherein the nucleic acid sequence is on a plasmid.

39. (currently amended). A nucleic acid sequence according to Claim 34 wherein the nucleic acid sequence is on a plasmid, wherein the plasmid is ~~Plasmid~~ pHMF374 of Figure 3.

40. (withdrawn). An effector cell containing a nucleic acid sequence or a plasmid according to Claim 34.

41. (withdrawn). An effector cell expressing a chimeric receptor of Claim 19.

In the specification:

Please amend the specification by adding the following passage at page 3, after line 14 and before line 15:

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows construct cassettes cloned into pBluescript KS+®.

Figure 2 shows oligonucleotide sequences for chimeric receptor construction. Oligonucleotides are presented in 5' and 3' orientation and are as follows: S4501 (SEQ ID NO: 1); S4502 (SEQ ID NO: 2); S4503 (SEQ ID NO: 3); S4504 (SEQ ID NO: 4); S4881 (SEQ ID NO: 5); S4882 (SEQ ID NO: 6); S4883 (SEQ ID NO: 7); S4884 (SEQ ID NO: 8); S4885 (SEQ ID NO: 9); S4886 (SEQ ID NO: 10); S4499 (SEQ ID NO: 11); S4500 (SEQ ID NO: 12); S4700 (SEQ ID NO: 13); and S4701 (SEQ ID NO: 14).

Figure 3 shows double gene expression plasmids for separate chain chimeric receptors, including: pHMF367; pHMF370; and pHMF374.

Figure 4 shows a histogram revealing stimulation of separate chain receptors with HL60 target cells.

Figure 5 shows a histogram revealing stimulation of separate chain receptors with NSO cells transfected with a control plasmid or a CD33-expressing plasmid.

Please replace the paragraph on page 12, lines 24-28 with the following paragraph:

Each component of the chimeric receptor was either PCR cloned or PCR assembled by standard techniques (PCR Protocols, Innis *et al* (1990) Academic Press Inc.) and sub-cloned in a cassette format into pBluecript KS+® (Stratagene), see Figure 1. Oligonucleotides (oligos) are described in Figure 2.

Please replace the paragraph on page 12, lines 30-35 with the following paragraph:

a) **Vl Cassette**

The variable region of the light chain of the human engineered antibody, hP67 (~~engineerd~~ engineered according to International Patent Specification WO91/09967) was PCR cloned with oligos S4503 and S4504. S4503 introduces a 5' Hind III site and S4504 a 3' Spe I site. The PCR product was restricted with Hind III and Spe I and subcloned into pBluescript KS+®.

Please replace the paragraph on page 13, lines 1-6 with the following paragraph:

b) **Vh Cassette**

The variable region of the heavy chain of the human engineered antibody, hP67 (engineered according to International Patent Specification WO91/0997) was PCR cloned with oligos S4501 and S4502. S4501 introduces a 5' Hind III site and S4502 a 3' Spe I site. The PCR product was restricted with Hind III and Spe I and subcloned into pBluescript KS+®.

Please replace the paragraph on page 13, lines 8-11 with the following paragraph:

c) **CD8* Spacer Cassette**

The CD8* spacer cassette was PCR assembled using overlapping oligos: S4881, S4882, S4883, S4884, S4885 and S4886. The PCR product was restricted with Spe I and Not I and subcloned into pBluescript KS+®.

Please replace the paragraph on page 13, lines 13-18 with the following paragraph:

d) **CD4 TM / CD4 Cassette**

The CD4 transmembrane and intracellular components were PCR cloned from human Leukocyte cDNA (Clonetech) with oligos S4499 and S4500. S4499 introduces a 5' Not I site and S4500 introduces a 3'_EcoR I and Sac I site. The PCR product was restricted with Not I and Sac I and subcloned into a pBluescript KS+®.

Please replace the paragraph on page 13, lines 26-27 with the following paragraph:

The PCR product was restricted with Not I and EcoR I and substituted for the CD4 TM/CD4 cassette in pBluescript KS+®.

Please replace the paragraph on page 13, lines 29-31 with the following paragraph:

All of the above cassettes were sequenced (Applied Biosystems, Taq DyeDeoxy Terminator Cycle Sequencing, Part Number 901497) in pBluescript KS+® prior to cloning into expression vectors.